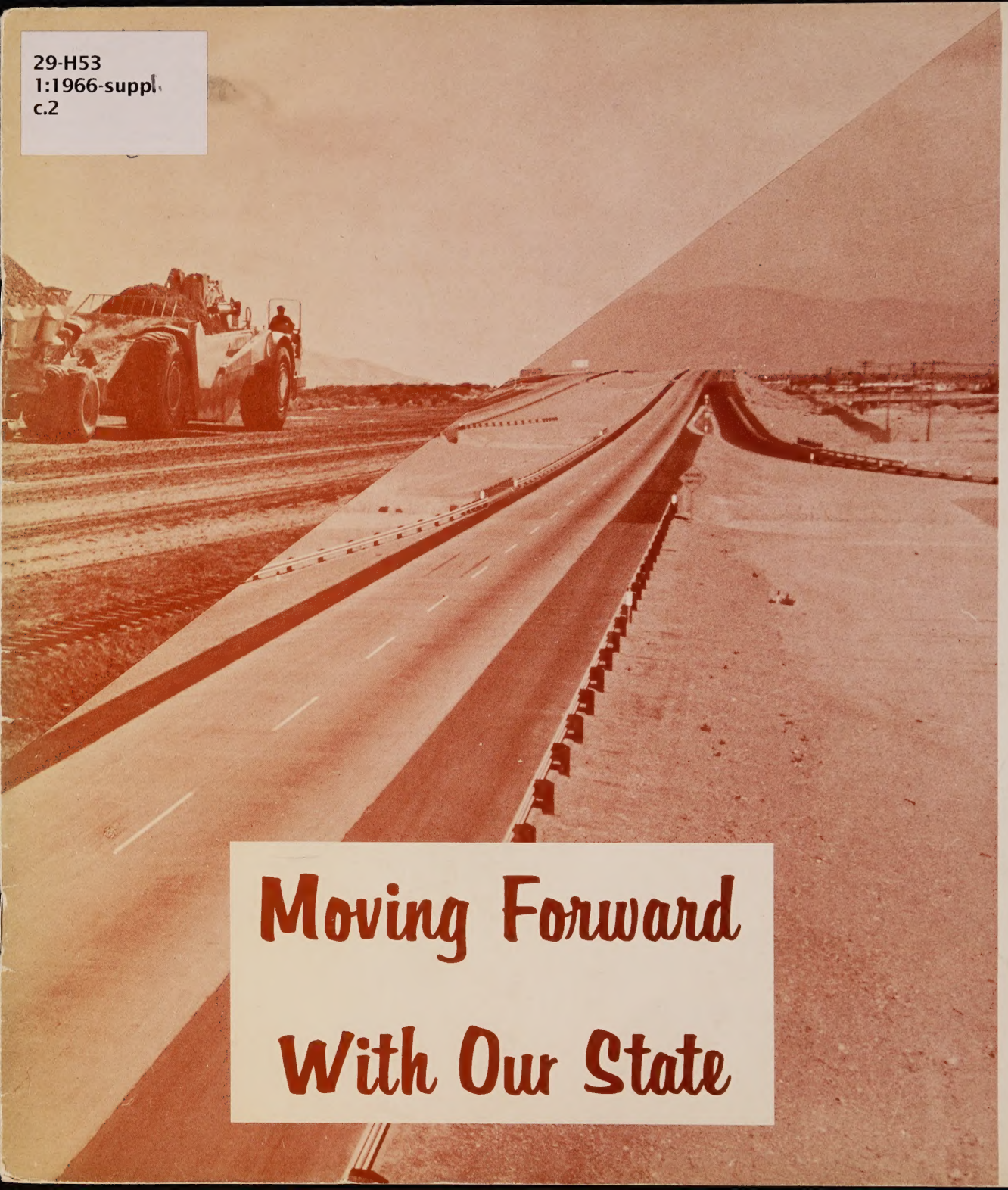
29-H53
1:1966-suppl.
c.2

NEVADA STATE LIBRARY



NEVADA HIGHWAYS 1965-1966

BIENNIAL SUPPLEMENT

Moving Forward With Our State

ORGANIZATION

Under the direction of the elected Highway Board of Directors, and the appointed State Highway Engineer and his two deputies, the highway program continued to expand during the biennium. In establishing new records for activity, the Department placed added emphasis on the use of the latest electronic and mechanical equipment by adequately trained and qualified personnel.

Technological and educational advances were made in the areas of planning, design, construction, maintenance, and administration. For the first time in Department history, management and administration rose to the same level of importance as engineering.

Training, as well as recruiting, became a major personnel activity during the past 2 fiscal years. Thousands of student-hours of instruction were given on an in-service basis for employees in nearly every highway division.

Organizational changes were made to streamline the Department's administrative structure and improve control. New methods and procedures were developed to improve the quality and quantity of highway production. These improvements made possible an increased level of activity despite a growing shortage of federal highway funds and a downward trend in employee strength.

HARVEY DICKERSON
Attorney General

GOVERNOR GRANT SAWYER
Chairman

KEITH LEE
Controller

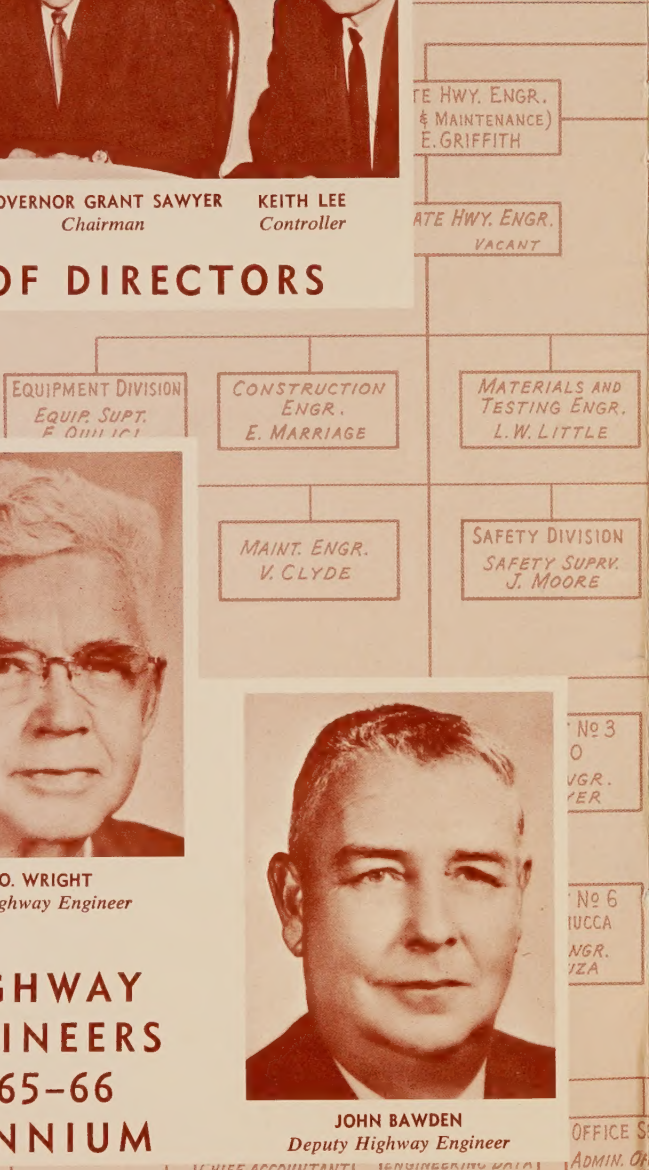
BOARD OF DIRECTORS

W. O. WRIGHT
State Highway Engineer

R. E. ELDREDGE
Deputy Highway Engineer

JOHN BAWDEN
Deputy Highway Engineer

HIGHWAY ENGINEERS 1965–66 BIENNIUM



NEVADA STATE LIBRARY AND ARCHIVES
3 1428 00100 5327

HIGHWAY ENGINEERS
July 1, 1966

JOHN BAWDEN
State Highway Engineer

SECTY. TO THE STATE HWY. ENGR., M. ROCHON

DEPUTY STATE HWY. ENGR. (ENGINEERING & PLANNING) RALPH J. OTTINI

ADMINISTRATIVE SERVICES
ADMINISTRATIVE ENGR. D. H. HAYS

ENGINEERING
ASST. DEPUTY STATE HWY. ENGR. A. G. KINNE

NNING
'ING ENGR. REIL

LOCATION ENGR.
W. H. GIBSON

ROAD DESIGN
DESIGN ENGR. O. WALKER

STRUCTL
BRIL A.

TRAFFIC ENGR.
A. B. CLARY

DIV. OF ARCHITECTS
ARCHITECT J. COONEY

DISTRICT № 4
ELY
DIST. ENGR. A. DALBEY

GEORGE GRIFFITH
Deputy Highway Engineer

RALPH OTTINI
Deputy Highway Engineer

RIGHTS OF WAY
CHIEF R/W AGENT J. WALLACE

LEGAL SERVICES
CHIEF COUNSEL J. THOMPSON

UTILITIES
UTIL. ENGR. L. KOONTZ

ERVICES
FICER &
W'Y. BOARD
ADEEN

PUBLIC INFORMATION OFFICER
W. ENGEL

PERSONNEL & TRAINING
H. CLAYTON

PROGRAM ENGR.
I. LAIRD

DATA PROCESS COORDINATOR
A. WOODGATE

PROGRAM CONTROL
SUPERVISING PROGRAM PLANNER (PERT)
VACANT

SUPERVISING SYSTEMS & METHODS ANALYST
VACANT

"NEVADA HIGHWAYS AND PARKS" MGZN.
MAGAZINE EDITOR D. BOWERS

As the biennial period closed, major administrative changes occurred. With the retirement of State Highway Engineer W. O. Wright, and the absence due to illness of Deputy Highway Engineer R. E. Eldredge, new appointments were made. Elevated to the top post was John Bawden; appointed as Deputy for Office Operations was Ralph Ottini; and appointed as Acting Deputy for Field Operations was George Griffith.

ADMINSTRATION

Control became the keynote in Department administration during the 1965–66 biennium. New methods and procedures were initiated to provide administrators with more effective management tools. The expanding highway program brought with it complex administrative problems affecting the production and efficiency of the entire agency.

Administration's relationship to engineering changed radically during the past 2 years. Emphasis shifted from the area of service to that of guidance and control.

Direction of the record-setting $112 million biennial program demanded the consideration of certain administrative requirements before engineering could begin. The fiscal status of the Department became a major concern in planning multi-million-dollar highway projects.

For the first time in recent agency history, the availability of federal and state highway funds became a problem in programming engineering activity. As the biennium closed, the previous backlog of federal aid had been used, and anticipated revenue appeared inadequate to complete the Interstate system or to make badly needed improvements on the other systems, as previously scheduled.

A shortage of qualified personnel and employee turnover became another area of administrative concern because of the effect on the Department's engineering activity. To meet this problem, the in-service training program initiated near the close of the previous biennial period was greatly expanded, and a major recruiting effort was made to attract graduate engineers.

Continued administrative participation was required on projects that affected urban development. Although public hearings on the Interstate were completed in 1964, several hearings were conducted by administrative personnel in the past 2 years for portions of the primary and secondary systems that passed through or near developed areas.

As work proceeded in other phases of engineering, fiscal management became a prime consideration. Improvements were made in documentation and accounting procedures to assure full and more rapid reimbursement for expenditure of state highway funds on federal-aid projects. The internal auditing program begun during the previous biennium was broadened in scope and increased in personnel to assure compliance with state and more rigid federal requirements.

At the same time, highway administration expanded its service operation to provide for the growing needs of the Department. At the beginning of this biennium, the move into and maintenance of the new headquarters building was assigned as an administrative responsibility. The mail and stock rooms were reorganized and expanded to upgrade service in these areas. Additional personnel were assigned to the Administrative and Information Officers to more adequately serve both the agency and the general public.

Added emphasis given administration and demand for administrative services was reflected in employee growth during the biennial period. While the average number of highway personnel in all divisions decreased 6 percent from 1964 to 1966, the employees in administration increased nearly 30 percent.

More use was made of data processing facilities for planning, designing, and controlling preconstruction engineering activity. As the biennium closed, faster

DATA PROCESSING

computing equipment with greater capacity to store information was being installed. This new computer system was cable-connected to the Motor Vehicle Department to permit both agencies use of the facilities.

ACCOUNTING & AUDITING

Growth of the auditing and accounting operations continued during the biennial period. New procedures and policies were developed for both administration and engineering. Emphasis was placed on control and documentation. Internal audit review was expanded to cover all phases of highway activity, and provide objective reports on operating practices of all divisions.

STORES & FILES

With the move into the new headquarters building, additional space was provided for the stock, mailing, and file rooms. The latter two activities were placed under the control of the Administrative Officer, and a supervisor was appointed to reorganize and coordinate the operation and personnel involved.

Duties and staff of the Administrative Officer (formerly titled the Office Engineer) were increased during the past 2 years. Added to his responsibility for contract records and permit issuance was the processing of payment for all newspaper advertising, the supervision of headquarters building maintenance, and administration of the mail and file rooms.

Training became a function of the highway personnel office. The shortage of qualified engineers and high employee turnover

OFFICE ENGINEER

PERSONNEL & TRAINING

PUBLIC INFORMATION

required major expansion of the training program initiated as the biennium started. In the past 2 years over 170,000 student hours of instruction were provided on an in-service basis to engineering and administrative personnel.

Separation of the highway magazine operation from that of public information occurred in early 1964. Since that time, both activities have increased in scope and size. The magazine is currently a quarterly commercial publication with its own staff, while the information office has expanded to include photography, audio-visual production, and a branch operation in Southern Nevada.

Federal-aid programming was a critical responsibility of administration during the past 2 years. Activity involved detailed proposals for using nearly $57 million in available federal highway funds.

Further management control was initiated through a program of detailed financial reporting by a newly established control analysis section. Responsibility for this activity had been assigned to the planning survey division.

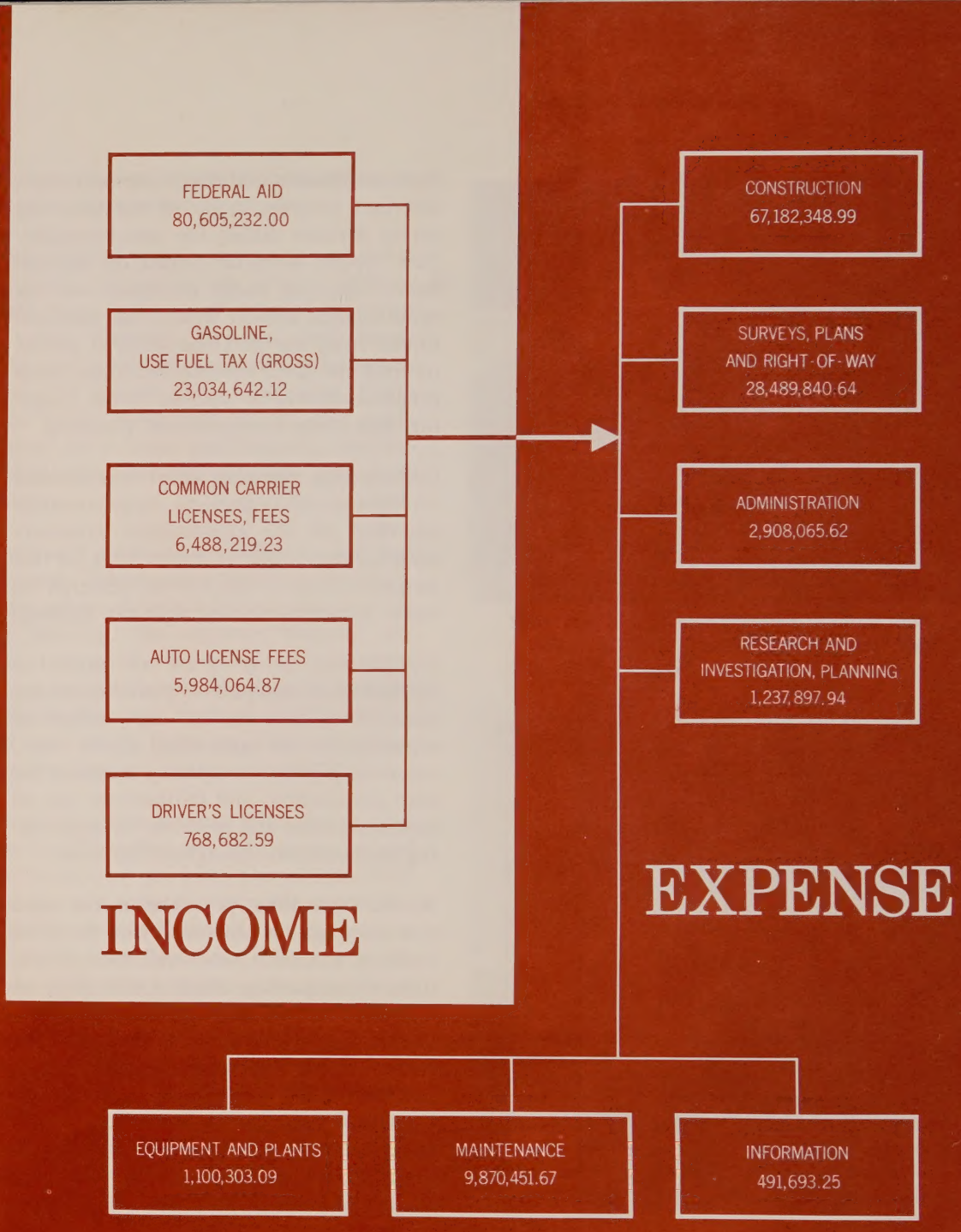
In the past two fiscal periods, publications included tables and graphs for motor vehicle user revenues and vehicle registrations on a monthly basis, yearly financial operations of local governments in connection with street and highway activities, and projected income and expenditures for all state highway operations.

FINANCE

Over the past 2 fiscal years, the dramatic growth in Nevada's highway program and its most crucial future problem are graphically seen in the Department's financial report. For the first and what may be the only time in this agency's history, over $60 million was spent in 1 year, and over $112 million was expended during the biennial period. Net revenues topped $112 million. This figure, too, established a new high for Department income over a 2-year period.

Federal participation accounted for 68 percent of the revenue and over 60 percent of the expenditures. Over $80 million was received, and over $70 million spent for construction, design, planning, and right-of-way acquisition.

The financial status of the state road program may change radically during the next biennium. As the 1965–66 biennial period closed there were strong indications that future federal participation might be reduced. This could seriously affect the current peak level of highway construction, causing further delay in completion of the Interstate and preventing the Department in the next few years from making vitally needed improvements in the primary and secondary systems.



PLANNING

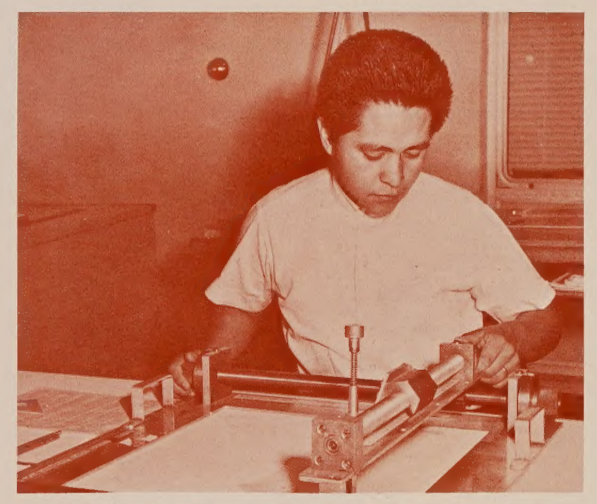
New assignments and new equipment characterized progress made by the planning survey division during the past biennium. New reports were developed on maintenance costs, on traffic accidents, and on beautification activity while work was continued from the previous biennial period on road and street inventories, county map preparation, visitor studies, traffic counting, and urban transportation planning.

Considerable planning effort was focused on highway safety projects. Approximately one-third of the construction contracts awarded during the biennium were for this purpose. Most of this activity centered on traffic signalization and highway lighting.

Continuing its program of updating methods and equipment, planning survey installed an immense new copy camera in reproduction for specialized photo work, acquired a photo composing machine for map preparation, and initiated the use of new equipment and methods for establishing map controls throughout the State.

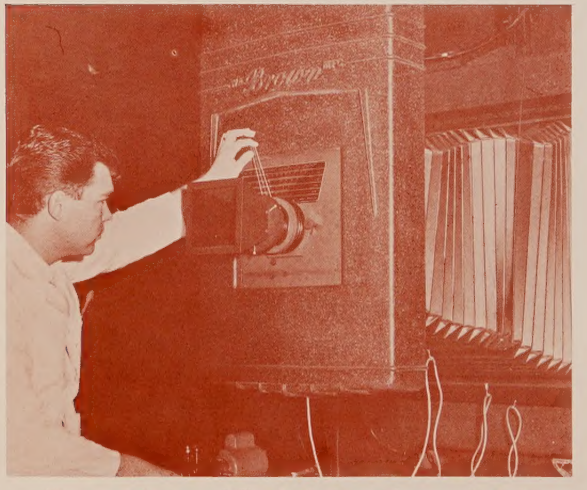
At the same time, personnel in the road inventory section proceeded with the third cycle of statewide road and street inventory, encompassing about 4,000 miles of highway on Nevada's primary and secondary systems. In the rural portion of the study, inventory of routes in Lyon, Pershing, and Clark counties was completed. Continued, too, was the Sufficiency Rating Study, a survey of existing roadway conditions. Data obtained on the highways studied provided a guide for priorities on

Painstaking accuracy was required to produce the aerial photo maps and displays used by planning, right-of-way, design, and public information.



Plotting machines of the type shown received increased use during the biennium as highway map production continued to expand its service.

Transistorized equipment was installed on many traffic control projects developed by the Department's electrical engineer.



Demand for specialized photography resulted in installation of larger, more versatile camera equipment, permitting enlargements to seven times and reductions to one-tenth original size.

the construction, reconstruction, and maintenance of present state roads.

The Department's mapping program included revision of the general highway base map, updating of detailed maps for Washoe, Ormsby, Douglas, and Storey counties, production of urban boundary maps for Carson City, Las Vegas, North Las Vegas, Reno, and Sparks, and publication of a state governmental jurisdictional map, and beautification cost study maps.

Increased emphasis on traffic control and highway lighting resulted in the establishment of an electrical engineering position in planning. The engineer assigned was made responsible for designing the systems being installed by the Department. Keeping abreast of current trends in control devices, he specified the most up-to-date electronic and photometric equipment possible.

Highlight of the biennial effort for the special studies section was the completion and publication of the 1963 Out-of-State Visitor Study. Information from this report was used by various state and local agencies in depicting and forecasting visitor expenditures in Nevada and the resulting economic impact of the tourist industry in this State.

Aerial photography was a major activity in planning over the past 2 fiscal years. Hundreds of photos were used in locating and designing the highways, in map making, in right-of-way acquisition, and in public hearings on proposed projects.

Home interviews played a key role in urban transportation planning studies. Surveys were conducted in the Reno and Las Vegas areas.

Traffic counting continued as an important planning function. Frequent maintenance was necessary to keep counters in operation, and tabulating tapes replaced.

DESIGN

Electronics, beautification, safety, project control, and aerial photography were key considerations in highway design during the 1965–66 biennial period. These items broadened both the design program and its ability to provide the plans and specifications needed for the complex roadway projects undertaken in the past 2 years.

Of particular importance was the emphasis given the use of electronic computers in calculations for earthwork, material needs, project planning, and project control. As the biennium closed, an improved system of data processing was being installed to provide faster computations and enlarged information storage. The new equipment will further assist design in meeting the growing demand for better highways.

Project control was improved through the PERT program and development of a new design manual. Program Evaluation Review Technique (PERT) enabled design supervisors and Department administrators to establish a schedule for preconstruction activity and keep the various phases of the project on that schedule. Additional improvement occurred in design procedures with the publication of an updated design manual which set forth the latest state and federal policies and requirements. Procedures also were established for regular review and revision of the manual.

Safety played an important role in the design program with over one-third of the jobs awarded set up as safety projects. The work included new lighting and signal systems, highway widening, and intersection improvement.

Use of aerial photography was greatly increased in the past 2 fiscal years. Aerial photos were used in preparing strip maps for preliminary design and public hearings. Aerial contour maps were prepared for route studies, alignment determination, earthwork computations, and drainage structure locations. Achievements during the biennium included the location of 133 miles of state highway, the completion for contract of 12 Interstate, 15 primary, 8 secondary, 6 urban, and 2 state projects involving a total construction cost of $47,650,000. Preliminary engineering on future projects amounted to $5,091,000 for the period.

At the same time, structural design recorded 74 bridges and grade separations placed under contract at a cost of $4,239,000. Plans also were completed on 87 additional structures for future construction. Most significant accomplishment was the start of design for the Carlin Canyon project—twin highway tunnels and bridge structures for Interstate 80 along the Humboldt River in western Elko County.

Structural requirements for Interstate 15 were nearing completion. Design of interchanges and grade separations on the freeway sections through Las Vegas and North Las Vegas were about 75 percent complete as the biennial period closed. The last section of I–15, the Mesquite bypass, was on the design boards when the 1967 fiscal year began.

On October 22, 1965, federal authorities approved the Highway Beautification Act which authorized appropriations from the federal general fund for beautification projects. Under three separate sections of the act, funds were provided for control of outdoor advertising, control of junkyards, and landscaping and scenic enhancement. The first two sections provided for federal-aid on a 75 percent federal and 25 percent state matching basis. Under the third section, the law provided for use of 100 percent federal funds.

New quarters for design divisions permitted much needed expansion of facilities and office space. Design occupies entire top floor of headquarters building.

Complex freeway design required more use of high-speed computers for calculations of material quantities, design details, and job planning.

Structure design was primarily related to freeway activity. Work began on the Department's first tunnel project—for Carlin Canyon in Eastern Nevada.

Checking figures was a never-ending job for road designers as plans were prepared for 43 projects costing $47,650,000, during the biennium.

Urban design expanded its activity as work progressed on freeways and expressways in Reno, Las Vegas, Winnemucca, and Elko.

Scale models were cooperatively produced by design and information personnel. Pictured is the elaborate model of the proposed Tahoe "High Line."

TESTING

Emphasis on project control was particularly evident in materials and testing. Record sampling of roadway and structural materials for federal approval of contract activity became a major testing responsibility. To handle this job and meet other requirements for testing and research, the headquarters laboratory increased its staff to 47 employees, a 25 percent gain over the previous biennium.

Refinement of procedures and development of new equipment were made necessary by the increased importance of testing to the highway program. In 1965 and 1966, over 141,000 tests were made on construction materials ranging from natural soils to synthetic textiles.

New specifications were established for products used in roadbuilding. More rigid federal requirements made contractor compliance with specifications a particular problem during the past 2 years. To assure adherence to Department standards, field sampling and inspection personnel and activity were increased.

Six major sections were involved in the lab and field work—chemical and metallurgical, roadbed aggregates, structural materials, asphalt, bituminous mix, and soils and foundation materials. Personnel in these sections processed over 25,000 separate samples during the biennial period. Among the materials tested were fence posts, barbed wire, electrical tape, metal guide posts, chain-link fence, water pipe, paint, cement, reinforcing steel, soils,

Materials testing was emphasized as control of field activity increased. New procedures were developed for cement-treated soil testing, shown here.

Increased use of concrete in structures and paving expanded lab work. Pictured is the compressive strength test and the massive equipment needed for it.

Oil quality is critical in material used for paving. Checking viscosity is just one of many tests made on each batch used.

Extremely accurate measurements are required in chemical analysis of construction materials. Special covered scales are among the instruments used.

gravels, concrete pipe, sand, asphalts (oil mixtures), water, and textiles.

One man was employed as a full-time geologist to locate, sketch, appraise for quantity and quality, and record material deposits throughout the State. With the growing scarcity of suitable material sites for highway construction, geological activity increased in importance. Information obtained by the geologist was provided with the contract special provisions to qualified bidders for each job.

Since 1964, considerable change has occurred in testing equipment and methods. Research was conducted on the experimental use of the Cenco Moisture Balance, a means for obtaining a quick determination of moisture content in roadbed materials. Tests were made of the Lane-Wells Road Logger which uses radioactive elements to rapidly record compaction of roadway materials. These two devices are being considered for future use by the Department.

Chemical analysis of substances used or recommended for use in highway work was greatly improved in the past 2 years. A Beckman spectrophotometer, and a Leco Carbon and Sulfur Determinator were acquired to speed chemical testing. Special equipment was installed to evaluate paint and other related material. Department chemist Budd Rude developed a new method for testing cement-treated base materials, and the procedure was recommended for adoption on a national basis.

As part of the Department's newly created system of engineering job rotation, the testing division was assigned graduate engineers for a 4-month orientation period. General instruction was given in the equipment, techniques, and agency specifications involved in material control.

During the biennial period, a review board for contract claims was established to advise the State Highway Engineer. The Chief Materials and Testing Engineer was assigned as a full-time member of the board since many post-contract claims for additional payment involved quality and quantity of materials produced.

Most unusual addition to testing's area of responsibility was the job of establishing requirements and controls for the variety of items used in the landscaping aspect of the beautification program. Involved were fertilizers, mulches, bedding materials, decorative rock, tree bark, sprinkler systems, and planting stock. Much assistance in developing specifications and appropriate tests was provided by landscaping contractors in the State.

Increasing use of cement-treated base (the addition of cement to soil to stabilize and strengthen the natural material) required the training of field as well as lab technicians for sampling and testing the material. A film was produced as an instructional aid in CTB testing, and in-service training given field personnel.

LEGAL RIGHT of WAY UTILITIES

Property acquisition requirements for highway construction nearly doubled in the past 2 years. Nearly 6,000 acres of land was obtained at a cost of $15,921,000, as compared with $8,095,000 spent during the previous biennium. To handle this rapid expansion of the program required a 40 percent increase in personnel for the right-of-way, utility, and legal divisions.

Major organizational changes were made in 1965 as a result of the acceleration in activity. Classified under the engineering series, a separate utility division was created. The growing complexity of utility and railroad adjustments, and the clearance and management of property acquired by the Department necessitated the development of this new organization. Appointed to coordinate and supervise the three divisions was an Administrator for Legal Services, Right-of-Way, and Utilities.

The acquisition program expanded activities initiated in the previous biennial period, and initiated several new ones. Relocation assistance, authorized by legislative action in 1963, became an important program in 1965 and 1966. With construction underway on Interstate routes through the Reno and Las Vegas urban areas, several hundred families and businesses were moved and received financial assistance.

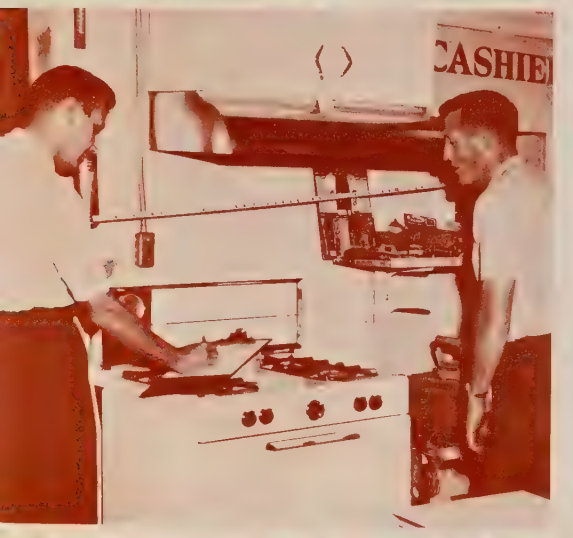
In-service training of appraisers, negotiators, lawyers, and engineers started during the 1963–64 period was greatly expanded. Several seminars were held in 1965 and 1966 and featured nationally recognized speakers from governmental and private agencies throughout the country. Arrangements were made for appraisers to attend institutes conducted in California for professional appraisal training.

Federal requirements for highway beautification became a major concern of the newly formed utility division. Stressed were the inventory and control of outdoor advertising and junkyards. Several months were spent on a "crash" program for surveying, photographing, and reporting on sign and junkyard sites found along Nevada's Interstate and primary highway systems. The study covered over 2,700 miles of roadway on which were located 5,125 billboards and 50 salvage yards that might require future action by the State.

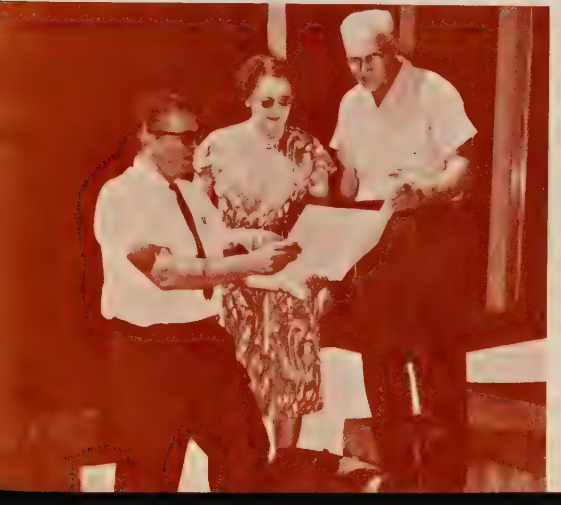
Property sales and clearance have become full-time jobs for utility personnel. Improvements from over 400 parcels of land were sold at auction for $111,100, while obsolete maintenance site sales totaled $58,400. Nearly $200,000 was spent on demolition contracts for right-of-way clearance.

Legal division personnel handled over 100 property condemnation cases in the past 2 years, processed over 300 state claims against persons damaging highway property, prepared 2,200 documents, and rendered over 500 oral and written decisions for legal guidance of Department administrators. All contract claims against the agency were handled by the legal division. One of the attorneys was assigned as a member of the Contractors' Claims Board.

Preparation of engineering information and property maps was the responsibility of right-of-way engineering. Additional personnel were required to produce the material needed for 668 parcels acquired.



Using the parcel maps and legal descriptions provided, highway appraisers examine the property in detail, check comparable sales and other data to determine a market value for the property being acquired.



Personal contact is frequently the procedure followed in negotiating for and purchasing the property. Nearly 6,000 acres of land were obtained, principally by negotiation. Effort was focused on the Reno and Las Vegas urban areas.

Utility adjustment and property disposal became major concerns during the biennial period. Nearly 30 agents and engineers were assigned to this operation, and to the survey and disposal of junkyards and billboards.

Public auctions were a regular activity as sales were held for property improvements on 402 parcels. Over $111,000 was received from the auctions of buildings, fencing, trees, and shrubs.

Largest legal staff in Department history was developed as a result of the expanded highway program. Over 2,200 documents were prepared, 500 opinions rendered, and 60 condemnation cases filed.

CONSTRUCTION

Roadbuilding during the 1965–66 biennium set new records for the Highway Department. Contract activity topped the $58 million mark for the first time in agency history—up 25 percent over the previous 2-year period.

Despite a general cost increase in other aspects of the economy, construction costs for the past 2 fiscal years have remained nearly static. In the first quarter of 1966, bid prices dropped to their lowest level in over 10 years.

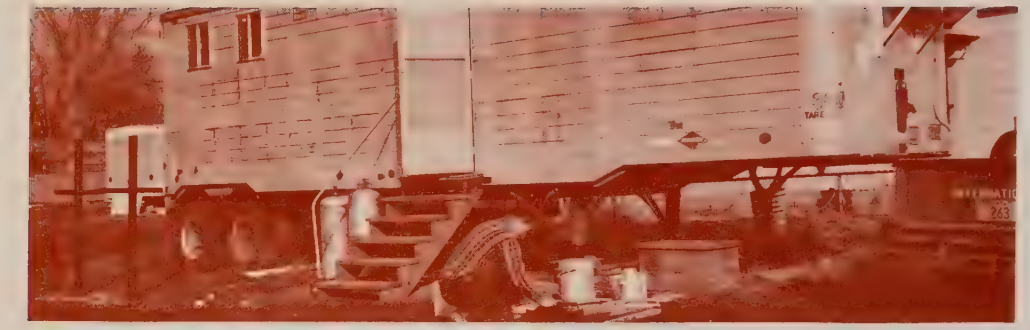
This economy in roadbuilding was possible through increased contract use of larger and more efficient construction equipment. Technological improvements permitted contractors to move up to 7,000 cubic yards of dirt per day, produce 500 tons of gravel or asphalt per hour, and build 19 miles of new paved highway in less than 5 months. Gravel "trains" capable of carrying 135 tons of material were used, along with 57-ton capacity scrapers, 50-ton compaction machines, and 15-ton loaders. Construction jobs involving the excavation of more than 3½ million cubic yards of earth, and the production of nearly one million tons of gravel could not have been finished on schedule without the use of such equipment.

Major construction achievements during the biennial period included award of the

Millions of tons of dirt and gravel were moved to build 270 miles of roadway. Shown is a gravel "train" carrying 135 tons per trip.

Machines like this "sheeps-foot" roller compacted millions of cubic yards of earth. On some projects, 50-ton compactors were used.

Speed was the key to freeway construction. Transit-mix trucks were used to transport cement from mobile batch plant to structure.



Designed by Department engineers, and built by equipment personnel, these portable labs were used on nearly every road job as a field testing facility.

Treated base materials were used in freeway construction. Cement was the usual additive, and the mixture was frequently spread with a paver.

For the first time since the 1920's, the Department completed a section of concrete pavement. Huge, slip-form pavers were used on the I–15 project.

largest contract to date, the $6,089,522 job for building 9.5 miles of Interstate 80 in Elko County; the longest and most costly secondary job yet undertaken by the Department, relocation of U.S. 93 in Clark and Lincoln counties which required 20 miles of excavation and grading and 56.5 miles of graveling and paving at a cost of $1,948,603; the 60-mile relocation of U.S. 50 in eastern Churchill and western Lander counties; and completion of the State's first urban section of the Interstate, 5.9 miles of I–15 from McCarran Field to Sahara Avenue in Las Vegas.

Control of material and results was a major concern of construction personnel. With the increasing complexity of activity associated with roadbuilding, supervising field operations became an important problem over the past 2 years. While the construction division continued to supervise contract activity, more emphasis was placed on project management at the district and resident engineering levels. The district engineer was assigned more responsibility for decisions affecting contract quality and progress.

During the biennial period, the headquarters construction office rewrote and updated the Standard Specifications for construction and produced a new construction manual and a new concrete inspectors' manual.

Roadbuilding in 1965 and 1966 required 20 full-time field survey crews. Additional seasonal help was hired during peak summer activity.

MAINTENANCE EQUIPMENT

Roadside cleanup, storm damage, and winter road service sent maintenance costs to a record level in the past 2 fiscal years. Over $9,870,000 was spent for maintaining 4,700 miles of state highway.

Development of rest facilities and an intensive campaign against litter raised the cost of roadside cleanup to nearly $410,000 for the past 2 years.

During the summer of 1965, cloudbursts in Western Nevada severely damaged several sections of state highway. Total flood damage during the biennium required over $300,000 in repairs. A record high $1,200,000 was spent on snow and ice control. Mountain routes were kept open all winter, and the sanding and salting program was expanded, requiring more equipment and man-hours.

Partially offsetting these increases was the operation of the equipment division. Savings were effected by greater use of diesel powered equipment, by increasing vehicle load capacity, and by modernizing the sign fabricating program. The budget for the 1965 fiscal year was $2,794,000 with 140 employees, and for 1966 was $2,637,000 with 146 employees.

Channel clearance was a major chore for maintenance in western Nevada. Flash floods in 1965 filled stream beds with huge boulders and debris.

Thousands of signs were used for traffic direction on state highways. Using special equipment, maintenance forces regularly cleaned them.

Mountain passes in the Sierras were blocked several times in 1965 by drifting snow. Massive rotary plows were used to reopen the roads.

A major anti-litter effort was begun by the Department. Unique signs and symbols were used to attract public attention to the campaign.

COMMUNICATIONS and SAFETY

During the past 2 years, highway communications has keyed its program to extending radio coverage within the State, and modernizing Department communication equipment. At the same time, the section conducted a study to determine the possibility of creating a state-owned communication system between the Reno and Las Vegas areas.

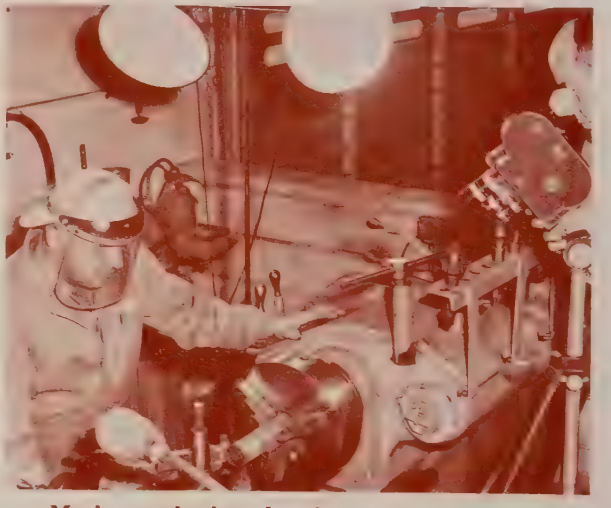
Pequop Mountain in Elko County was developed as a radio site and equipment moved to that location. Radio stations were established at field construction offices in Mesquite in Southern Nevada and Zephyr Cove at Lake Tahoe. Surveys were conducted for future installation of radio transmission facilities on Sober Peak in Nye County and Eureka Mountain in Eureka County.

Employee and operational safety were given particular emphasis in the 1965–66 biennial period. New safety devices were adopted and new training material and procedures developed.

At the same time, the first steps were taken to initiate a Department-wide driver safety program. Eye and reaction tests were given to 900 employees and plans set to examine the remaining 500 during the coming year.

The Safety Director in cooperation with the training and information sections produced the Department's first safety films: "Highway Maintenance Signing and Signaling," and a movie on handling explosives.

Attention to the safety program was particularly directed toward improving roadway safety for maintenance and construction forces.



Movie production by information personnel assisted in preparation of training material for the Department's safety program.

PROGRAM of ACHIEVEMENT 1965 - 1966

Nevada's Highway Department can be justly proud of its accomplishments during the 1965–66 biennium. The period was the most active in the agency's history as more than $110 million was spent on road-building activity.

More progress was made toward completion of the 535-mile Interstate Freeway system than during any previous 2-year period. Nearly 160 miles were opened to traffic on I–80, and 40 miles on I–15 for a combined contract cost of $56 million. Another 69 miles costing $27.4 million were under construction at the close of the biennium. Work started in the important areas of Reno and Las Vegas, and the State finished its initial section of urban freeway, the 5.7 miles of I–15 from McCarran Field to Sahara Avenue in Las Vegas that also was Nevada's first concrete paving project since the 1920's.

The record achieved on the primary and secondary systems was equally impressive. Relocation of 60-mile segments of U.S. 93 in Southern Nevada and U.S. 50 in Central Nevada was begun. The long-awaited reconstruction of the "widowmaker" section of U.S. 95 between Las Vegas and Mercury was completed.

In the other areas the achievements included repaving U.S. 40 through Reno and Sparks, widening U.S. 395 in south Reno, rebuilding and landscaping east Sahara Avenue in Las Vegas, and reconstructing and widening U.S. 395 through Minden and Gardnerville, U.S. 50 at Lake Tahoe, U.S. 95 between Fallon and Schurz, and U.S. 95 Alternate between Silver Springs and Wabuska.

Such accomplishment in the field would not have been possible without major improvements in the divisions that support the construction program. Nearly every operational and service area developed new procedures, expanded its personnel, installed new equipment, and made some organizational changes.

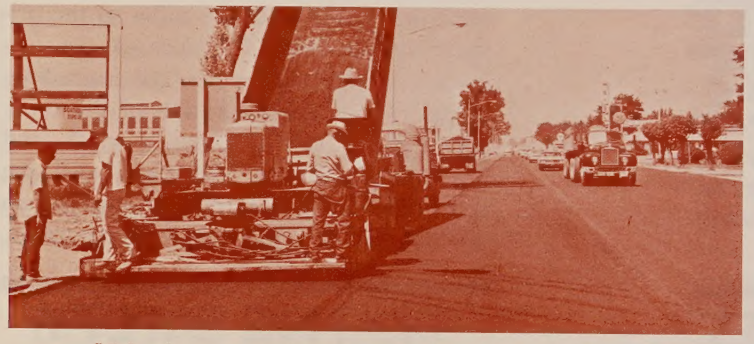
Control and supervision were strengthened through the establishment of such new positions as Administrator for Legal Services, Right-of-Way, and Utilities, and the expansion of the internal auditing program. A contract claims review board was organized to assist the State Highway Engineer in decisions concerning requests for additional payment by construction contractors.

Attention was directed to the areas of training and safety. Personnel shortages and industrial accidents became major problems in the Department's accelerated construction program. Thousands of student hours of instruction were provided on an in-service basis; several color-and-sound motion pictures were produced; out-of-state recruiting was tried; and a concerted effort made to overcome lack of trained and safety-conscious employees.

The biennium closed with a feeling of achievement, and a realization that change and improvement must be a continuing process if the Department is to maintain its proud record of accomplishment.

Interstate freeway construction and completion highlighted biennial achievement for highway field forces. Seen is I–15 near Las Vegas.

Data processing became a common tool for all highway divisions. Electronic computers provided rapid calculations needed by engineers and administrators.



Major improvements were made in urban arterials. U.S. 40, the main east-west route through Reno and Sparks, was rebuilt curb to curb.

Roadside service and beautification were prime objectives during the biennium. Included in the contracts let was the one for this park in Hawthorne.

Future planning got underway with public hearings on proposed urban expressways in the Truckee Meadows area.

Culminating nearly 5 years of dedicated effort by local, state, and national officials, the Las Vegas-Mercury Expressway was completed.

IMMEDIATE - HIGHWAY

INTERSTATE

Despite current indications of federal cutback in highway allocations, the Department is continuing its efforts to complete the Interstate system by 1973. Planning, programming, and preliminary engineering are scheduled or underway for the remaining urban and rural freeway sections. Both traffic growth and safety demand construction proceed as rapidly as funds permit. By the end of the 1967 calendar year, nearly two-thirds of the 535-mile system will be open to traffic. All but 12 miles on I–15 will be built, and only 180 miles will remain unfinished on I–80.

URBAN FACILITIES

Equally demanding and vital to Nevada's future is the planning and construction of modern highway facilities for the mushrooming urban areas. Over three-quarters of the State's population and its motorists reside there. Most of the State's tourist traffic has these areas as a primary destination.

The coordination necessary among the federal, state, and local agencies involved has been accomplished. Public hearings have been held and alignments selected for the North-South Freeway and Ring Road projects in the Reno area, and for the Downtown and Sahara Avenue Expressways in Las Vegas.

RECONSTRUCTION

Sufficiency studies of highway capacity and condition reveal that 136 miles of the primary system and 725 miles of the secondary system are in need of immediate reconstruction. Deterioration of the roadway surface, lack of sufficient width, and improper curvature and sight distance make older sections of the state road system inadequate for today's high-speed traffic.

TRAFFIC SAFETY

A survey has been made of potential hazardous locations on the State's highways. From this study, a program of safety projects is being developed. Included will be improvement of roadway intersections, modernization of signal and lighting systems, widening existing highway sections presently inadequate for traffic volumes, and development of median barriers, guardrail, and poles for signs and lighting signals that are less hazardous for the motorist.

NEEDS - LONG RANGE

MORE FREEWAYS

Highway planners believe that the freeway program will not stop with completion of the present Interstate system. Traffic volumes and motorist demands for speed and safety are growing at an explosive rate. As part of its post-1973 planning, the Department has requested addition of U.S. 50 to the Interstate Freeway system. Plans are being developed for future construction of a "High Line" freeway at Lake Tahoe to replace present U.S. 50 from Spooners summit to Stateline. Projected traffic volumes in that area will require such a facility within the next decade.

BEAUTIFICATION

Highway administrators and planners currently agree that roads must be attractive as well as functional. The desert region of Nevada makes landscaping and other beautification measures a problem, but work has already begun in this direction. During the past biennium, a number of beautification projects were let for contract; landscaping Sahara Avenue and Interstate 15 in Las Vegas, U.S. 95 through Indian Springs and Cactus Springs, U.S. 395 from Carson City north to Washoe Valley, Plumb Lane in Reno, and south Stewart Street in Carson City.

Fencing of junkyards and relocation of billboard advertising also is a part of the program. From the inventory completed during the 1965–66 biennial period, the Department is developing plans for such activity. In compliance with federal regulations, the State awarded its first contract for fencing a salvage yard.

SYSTEM GROWTH

In the past 2 years, Nevada's counties have been submitting proposals for future construction of secondary highways. From these requests and meetings with county commissioners throughout the State, the Department has developed a 20-year program for improving and expanding the secondary system.

The secondary program is nearing its 2,500-mile limitation. At present, 2,469 miles have been constructed. Several hundred additional miles of new roadway have been requested by the counties, and more such requests are anticipated in the future. As the population increases, as mining and agriculture develop, and as the demand grows for access to potential recreational areas, the State will have to expand its system of highways. Hopefully, funds will be available to carry out this program.

50 YEARS OF SERVICE

1917 - 1967

SUPPLEMENT TO

TWENTY-FIFTH BIENNIAL REPORT

NEVADA DEPARTMENT OF HIGHWAYS

OFFSET BY SPO, CARSON CITY